ESDIS Prototyping
WebWinds

WebWinds: A Java-based Environment for the Interactive Display and Analysis of Scientific Data

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- Program Objectives

- Technical Approach

- Recent Enhancements

- Application Suite and Examples

- New Work

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Program Objectives

- The creation of tools that aid in the distribution of just the data needed, when it is needed from sources such as the DAACS and others producing data products.

- The creation of user-friendly, cross-platform display and analysis tools.

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Technical Approach

- Develop a display and analysis package that is free, multi-platform, user-friendly and a turnkey system. Such a package must accept input from and provide output to other packages and should enable collaboration among distributed users. This package is written in Java

- In order to handle segmented or very large data files, develop subsetting, subsampling and supersetting options either at the data source, and/or on the user's client machine.

- Each EOS instrument will provide data in a unique form. It is necessary, therefore to create applications that have as much functionality as possible in order to ingest as many data sets as possible.

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Implementation features

- Cross platform capability: Windows (95/98/NT/2000), Mac, Unix/Linux

- Interactive data, image and color manipulation.

- The ability to act as a Web browser helper application, making it possible to survey scientific data archives in interactive mode.

- A scripting language which allows session configuration, re-run and real-time network collaboration, automatically.

- A context sensitive help system.

- Complete documentation including examples.

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WebWinds Database Ingestion

There are currently three methods for accessing and ingesting new data files:

- A file is selected in the file finder. If it is self-describing (e.g. HDF-EOS), its metadata are read in automatically. For non-self-describing (e.g. raw byte), the user must supply metadata.

- The user can edit one text file (datamanager.txt).

- Data files can be retrieved using a World Wide Web browser, and are immediately converted into WebWinds data source objects.

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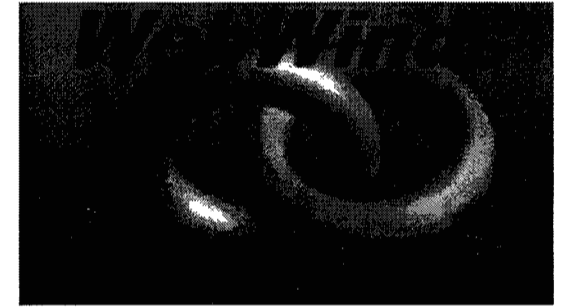
Recent enhancements:

- **Most types of files may be stacked together (concatenated) to produce a larger file. This allows, for example, daily files to be combined to produce an animation.**

- **Some formats of HDF-EOS Swath data can be read and geo-located.**

- **Script files created for MASTER/MAS sample data.**

Key: **Bold-Developed here, available now;** *Italic- Developed elsewhere;*
Underlined- Available next release

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Recent enhancements, continued

- <u>Visual subsetting from thumbnail images</u>

- <u>User selectable binning of non-regular data</u>

- <u>3D Globe and Plane with height perspective</u>

- *<u>Irregular bounding curves</u>*

- *<u>Animation</u>*

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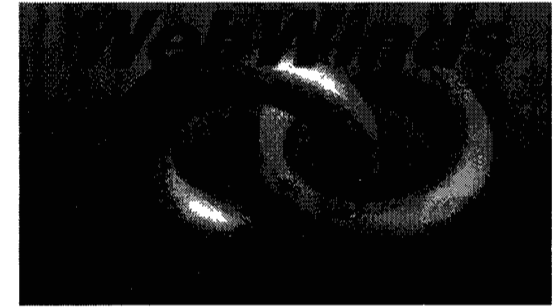
Recent enhancements, continued

- *Separate, complete installation packages for PC, Mac, Sun, SGI and Linux systems. This enables 'one stop' shopping and simple installation.*

- *Modified or original data may be saved in several formats including binary, VICAR and NetCDF.*

- *Shortcuts can be generated automatically with macros.*

- *A new Overlay tool allows tabular (ASCII) data to be superimposed on an Image. These overlays can show variations in symbol size, color and range and thus represent the numerical value of the tabular data.*

- *A new Pause tool allows the temporary delay of the execution of a script, allowing, e.g., the dynamic selection of a file.*

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WebWinds Applications Suite

| Controls	Display/Controls	Displays
Animator	Combine	Average
Calculator	Compare	Profile
ColorTool	Contour	TrackPixel
Combine Slider	Decimate/Subset	ValueView
RGB-Slider	FFT	Window Tool
Slider	Histogram	2D Scatterplot
3-Slider	Image	*Plane*
3 Axis Rotator	LinePlot	*Polar*
2 Axis Rotator	**Utilities**	*Globe*
	Remote Sessions	*XYPlot*
	Macros	
	Rerun	
	Pause	
	Snapshot	

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High Performance 3D
Graphics Using OpenGL-
AIRS Surface Temperature
Swath Over Elevation
Data

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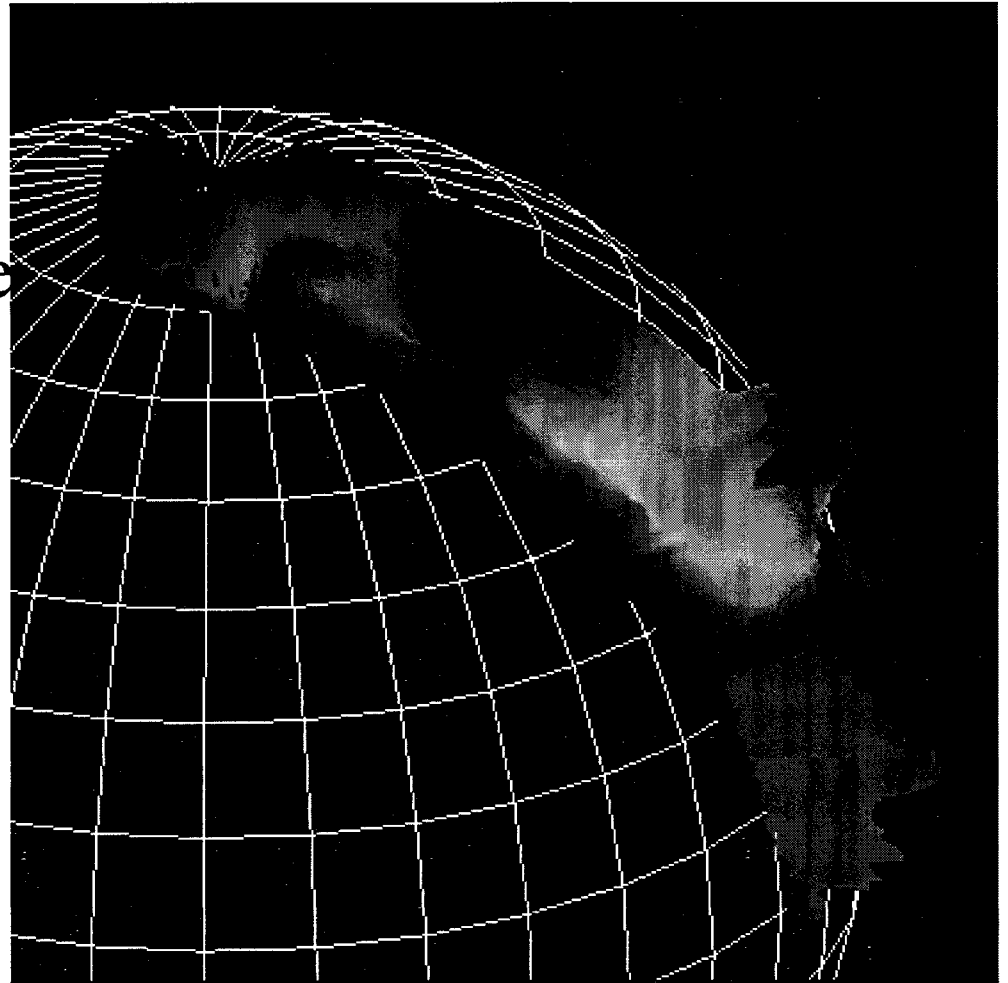
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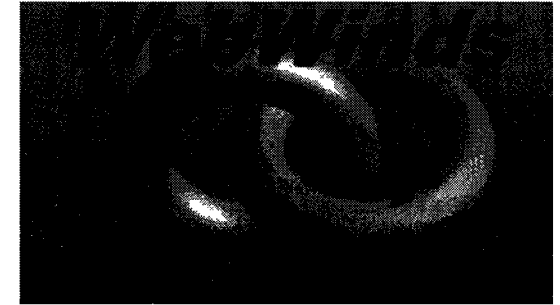## Visual subsetting of MAS data
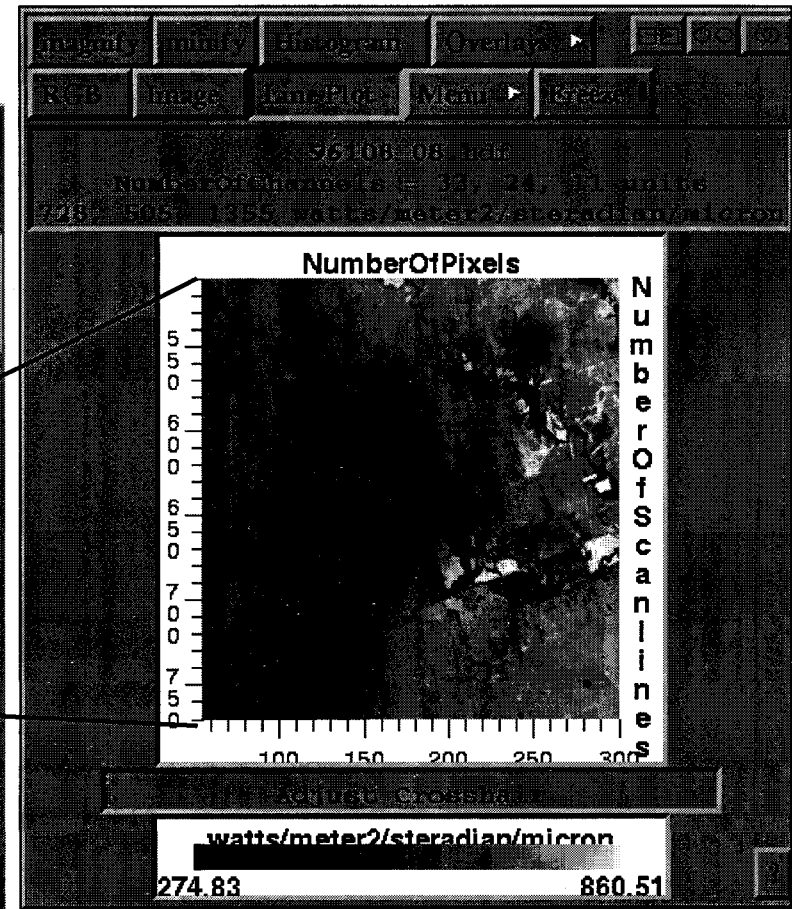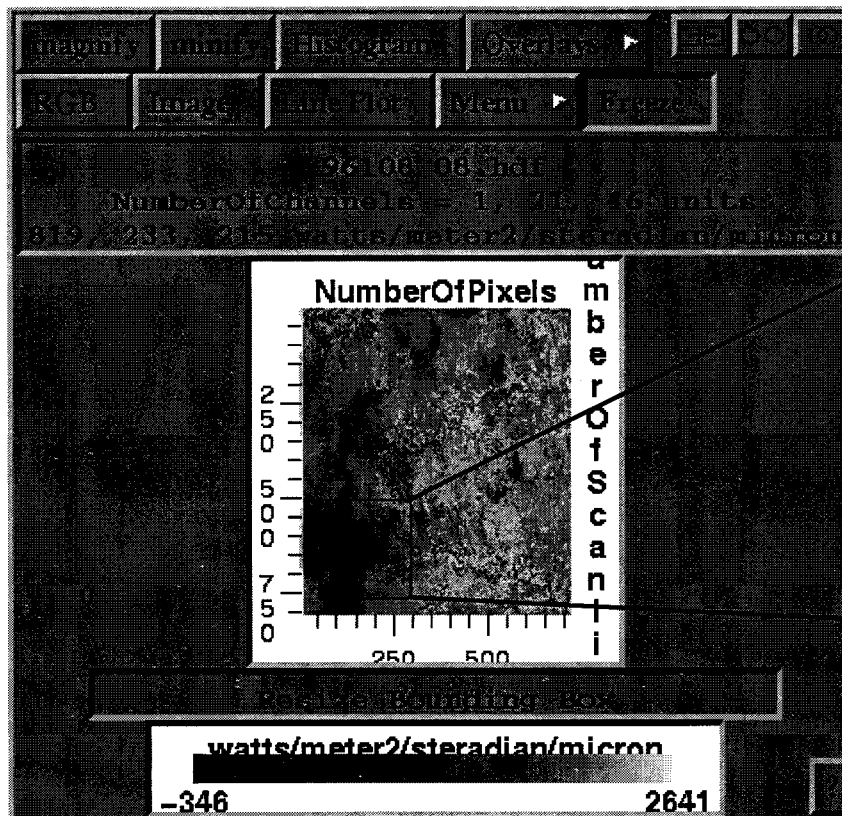
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New work, FY '00

- Develop new input modules for formats which can't currently be interpreted (e.g. MISR, HIRDLS Swath data, geo-locating MAS/MASTER).

- Composite Level 2 files containing multiple sub-files (e.g. Swath data) which can be merged to produce more complete coverage without increasing the order of the data as is done with concatenation.

- Provide macro scripts which automate the file ingestion process for ASTER, Landsat, 5 types of MODIS Level 2 files and several types of Level 3 files. Each macro will automate the process of view axis selection, subsampling and data loading once the user has selected a file.

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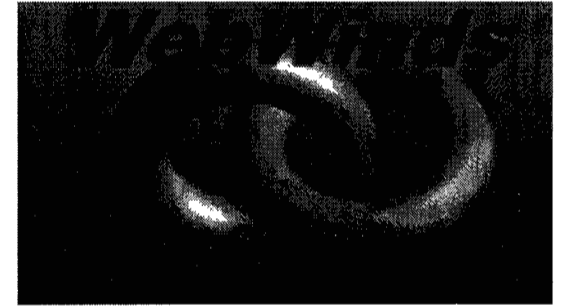
New work, (continued)

- We will develop a modest re-gridding capability that will allow the user to specify a regular linear grid and an interpolation procedure (bi-linear, bi-cubic and nearest neighbor fits) for ASCII tables and HDF-EOS Point data .

- We will continue our development of server-side processing by testing a platform-distributed version of WebWinds.